CENTER FOR DRUG EVALUATION AND RESEARCH

APPLICATION NUMBER: 21-116

CORRESPONDENCE

DEPARTMENT OF HEALTH & HUMAN SERVICES



Public Health Service

Food and Drug Administration Rockville, MD 20857

NDA 21-116

Attention: Joseph Denhart, Ph.D. Vice President, Regulatory Affairs P.O. Box 130 604 West Thomas Ave. Shenandoah, Iowa 51601-0130

Dear Dr. Denhart:

Please refer to your approved New Drug Application (NDA) submitted under section 505(b) of the Federal Food, Drug, and Cosmetic Act for Thyro-Tabs (levothyroxine sodium tablets, USP).

We also refer to your April 22, May 27, and September 25 and 25, 2002, amendments containing stability information, and we refer to our October 24, 2002, approval letter for this application.

We have reviewed your stability data and have established the following expiry dating for the finished drug products:

25 mcg tablets 50, 75, 88 mcg tablets 100, 112, 125, 150, 175, 200, 300 mcg tablets

If you have any questions, call Enid Galliers, Chief, Project Management Staff, at (301) 827-6429.

Sincerely,

{See appended electronic signature page}

David G. Orloff, M.D.
Director
Division of Metabolic and Endocrine Drug Products
Office of Drug Evaluation II
Center for Drug Evaluation and Research

/s/

David Orloff 12/20/02 05:47:49 PM

DEPARTMENT OF HEALTH & HUMAN SERVICES

9/25/02 DR

Public Health Service

Food and Drug Administration Rockville, MD 20857

٠.

NDA 21-116

DISCIPLINE REVIEW LETTER

Lloyd Incorporated
Attention: Dr. Joseph W. Denhart
Vice President Regulatory Affairs & Quality Assurance
604 West Tomas Avenue
Shenandoah, Iowa 51601

Dear Dr. Denhart:

Please refer to your August 20, 1999, new drug application (NDA) submitted under section 505(b) of the Federal Food, Drug, and Cosmetic Act for Thyro-Tabs (levothyroxine sodium tablets, USP).

We also refer to your submissions dated October 5 and 30, 2001.

Our review of the Biopharmaceutics section of your application is complete. The Office of Clinical Pharmacology and Biopharmaceutics has reviewed this NDA and finds that the overall "Human Pharmacokinetics" section is acceptable. We have established the dissolution specification for THYRO-TABS as follows:

Table 1: USP 24 Supplement 1				
Medium:	0.01 N HCl containing 0.2% sodium lauryl sulfate			
Volume:	500 mL			
Apparatus:	2 (paddles)			
Speed: -	50 RPM			
Tolerances:	— Q) of the labeled amount of levothyroxine sodium is dissolved ir —			

- Please indicate your acceptance of these specifications in an amendment to your pending NDA or provide information to support a different specification.
- We have made a number of editorial changes to the LEVOTHYROXINE SODIUM TABLETS package insert template labeling since the last version you received. Most of the changes are typographical. Please revise the package insert for your application according to the enclosed draft labeling. In addition to your written response, we would appreciate receiving an electronic copy of the revised labeling in both MSWord and Adobe Acrobat portable document format (pdf).

If you wish to receive an electronic copy by email of the template labeling in MSWord format, please contact Steve McCort at 301-827-6415.

Please note that the mailing address for the Division has changed slightly and is as follows:

Center for Drug Evaluation and Research/FDA
Division of Metabolic and Endocrine Drug Products (HFD-510)
Attention: Fishers Document Room 8B-45
5600 Fishers Lane
Rockville, MD 20857

We are providing these comments to you before we complete our review of the entire application to give you <u>preliminary</u> notice of issues that we have identified. In conformance with the prescription drug user fee reauthorization agreements, these comments do not reflect a final decision on the information reviewed and should not be construed to do so. These comments are preliminary and subject to change as we finalize our review of your application. In addition, we may identify other information that must be provided before we can approve this application. If you respond to these issues during this review cycle, depending on the timing of your response, and in conformance with the user fee reauthorization agreements, we may not be able to consider your response before we take an action on your application during this review cycle.

If you have any questions, call Enid Galliers, Chief, Project Management Staff, at (301) 827-6429.

Sincerely,

Enid Galliers
Chief, Project Management Staff
Division of Metabolic and Endocrine Drug Products
Office of Drug Evaluation II
Center for Drug Evaluation and Research

ENCLOSURE

______ Draft Labeling Page(s) Withheld

/s/

^Enid Galliers 9/25/02 07:16:01 PM



P.O. BOX 130 • 604 WEST THOMAS AVE. • SHENANDOAH, IOWA 51601-0130 U.S.A. • FAX (712) 246-5245

27 May 2002

David Orloff, MD, Division Director

Division of Metabolic and Endocrine Drug Products

HDF-150, Department Control Room 14B-19

Center for Drug Evaluation and Research

Food and Drug Administration

5600 Fishers Lane

Rockville, Maryland 20857

RECEIVED

JUN 0 5 2002

HFD-510/CDER

Attention:

Mr. Steve McCort, Project Manager

Division of Metabolic and Endocrine Drug Products

Subject:

NDA 21-116

Amendment Submission No. 19 Revised Labeling for Thyro-Tabs[®] (levothyroxine sodium tablets, USP)

Dear Dr. Orloff:

This submission is an amendment to our pending NDA providing the revised labeling for Thyro-Tabs® (levothyroxine sodium tablets, USP) as requested by Mr. Steve McCort on 25 April 2002. The revision consists of incorporating the package insert template edited 4 February 2002 and forwarded to Lloyd, Inc., on 25 April 2002.

Enclosed with this submission are the archival copy and three review copies; one each for the CMC section, Pharmacology Section, and Pharmacokinetic Section. Four complete copies of the amended labeling are provided in the archival copy. We certify that a field copy of this submission has been provided to the Kansas City District office under separate cover.

Correspondence concerning this NDA should be directed to Dr. Joseph W. Denhart, Vice President Regulatory Affairs and Quality Assurance or Stuart Johnson, Vice President Operations at (800) 831-0004 or (712) 246-4000.

Sincerely,

LLOYD, Inc.

W. Eugene Lloyd, D.V.M., Ph.D.

CEO

DEPARTMENT OF HEALTH AND HUMAN SERVICES FOOD AND DRUG ADMINISTRATION

Form Approved: OMB No. 0910-0338 Expiration Date: March 31, 2003 See OMB Statement on page 2.

APPLICATION TO MARKET A NEW DRUG, BIOLOGIC, OR AN ANTIBIOTIC DRUG FOR HUMAN USE

FOR FDA USE ONLY
APPLICATION NUMBER

(Title 21, Code of Federal Regulations, Parts 314 & 601)

· · · · · · · · · · · · · · · · · · ·						
APPLICANT INFORMATION						
NAME OF APPLICANT	DATE OF SUBM	DATE OF SUBMISSION				
LLOYD, Inc., of Iowa	27 May 2002	27 May 2002				
TELEPHONE NO. (Include Area Code) (712) 246-4000		FACSIMILE (FAX) Number (Include Area Code) (712) 246-5245				
APPLICANT ADDRESS (Number, Street, City, State, Country, ZIP Co and U.S. License number if previously issued):	AUTHORIZED U.S. AGENT NAME & ADDRESS (Number, Street, City, State, ZIP Code, telephone & FAX number) IF APPLICABLE					
604 West Tomas Avenue	N/A					
Shenandoah, Iowa, USA 51601			·			
	•					
PRODUCT DESCRIPTION						
NEW DRUG OR ANTIBIOTIC APPLICATION NUMBER, OR BIOLOG	SICS LICENSE APP	LICATION NUMBER	R (If previously issued) NDA	21-116		
ESTABLISHED NAME (e.g., Proper name, USP/USAN name) levothyroxine sodium tablets, USP	PR	OPRIETARY NAME	E (trade name) IF ANY	Thyro-Tabs ®		
CHEMICAL/BIOCHEMICAL/BLOOD PRODUCT NAME (If any) levothyroxine sodium, USP			CODE NAME (If arry) N/A			
	25, 50, 75, 88, 10	00, 112, 125,	ROUTE OF ADMINISTRATION:	· · · · · ·		
Immediate release tablets / 150, 175, 200 (PROPOSED) INDICATION(S) FOR USE:	J, 300 mcg	<u></u>	Oral			
Hypothyroidism, Thyroid Goiter, Thyroid Cancer						
			·			
APPLICATION INFORMATION APPLICATION TYPE	<u> </u>					
(check one)	50) 🗆 ABB	REVIATED NEW D	.; RUG APPLICATION (ANDA, 21 (CFR 314.94)		
☐ BIOLOGICS LICENSE API	PLICATION (21 CFI	R Part 601)		•		
IF AN NDA, IDENTIFY THE APPROPRIATE TYPE 505 (b)(1) .50 5	05 (b)(2)				
IF AN ANDA, OR 505(b)(2), IDENTIFY THE REFERENCE LISTED IN Name of Drug	DRUG PRODUCT Tolder of Approved Ap	HAT IS THE BASIS	FOR THE SUBMISSION			
N/A - N/A TYPE OF SUBMISSION (check one) ☐ ORIGINAL APPLICATION ☑ AMENDMENT TO A PENDING APPLICATION ☐ RESUBMISSION						
PRESUBMISSION ANNUAL REPORT		ENT DESCRIPTION SI		CY SUPPLEMENT		
			. –	, .		
IF A SUBMISSION OF PARTIAL APPLICATION, PROVIDE LETTER		MENT TO PARTIAL	SUBMISSION: IN/A			
IF A SUPPLEMENT, IDENTIFY THE APPROPRIATE CATEGORY		CBE CBE-	30 Prior Approval (PA)	N/A		
REASON FOR SUBMISSION Thyro-Tab Draft Labeling (Amendment Submission #19)						
PROPOSED MARKETING STATUS (check one) PRESCRIPTION PRODUCT (Rx) OVER THE COUNTER PRODUCT (OTC)						
NUMBER OF VOLUMES SUBMITTED 1	THIS APPLICATION	ONIS PAP	ER PAPER AND ELECTR	ONIC ELECTRONIC		
ESTABLISHMENT INFORMATION (Full establishment inform Provide locations of all manufacturing, packaging and control sites finaddress, contact, telephone number, registration number (CFN), DN conducted at the site. Please indicate whether the site is ready for	for drug substance a MF number, and ma:	and drug product (co nufacturing steps as	oody of the Application.) ontinuation sheets may be used it nd/or type of testing (e.g. Final do	necessary), include name,		
N/A						
Cross References (list related License Applications, INDs, NDAs, PMAs, 510(k)s, IDEs, BMFs, and DMFs referenced in the current application)						
N/A						
				,		
Ì						

This application contains the following items: (Check all that apply)						
1. Index						
	nted Labeling					
3. Summary (21 CFR 314.50 (c))						
4. Chemistry section						
A. Chemistry, manufacturing, and controls information (e.g., 21 CFR 314.						
B. Samples (21 CFR 314.50 (e)(1); 21 CFR 601.2 (a)) (Submit only upon FDA's request)						
C. Methods validation package (e.g., 21 CFR 314.50(e)(2)(i); 21 CFR 601.2)						
5. Nonclinical pharmacology and toxicology section (e.g., 21 CFR 314.50(d)(2); 21 CFR 601.2)						
6. Human pharmacokinetics and bioavailability section (e.g., 21 CFR 314.50	(d)(3); 21 CFR 601.2)					
7. Clinical Microbiology (e.g., 21 CFR 314.50(d)(4))	7. Clinical Microbiology (e.g., 21 CFR 314.50(d)(4))					
8. Clinical data section (e.g., 21 CFR 314.50(d)(5); 21 CFR 601.2)	8. Clinical data section (e.g., 21 CFR 314.50(d)(5); 21 CFR 601.2)					
9. Salety update report (e.g., 21 CFR 314.50(d)(5)(vi)(b); 21 CFR 601.2)						
10. Statistical section (e.g., 21 CFR 314.50(d)(6); 21 CFR 601.2)						
11. Case report tabulations (e.g., 21 CFR 314.50(f)(1); 21 CFR 601.2)						
12. Case report forms (e.g., 21 CFR 314.50 (f)(2); 21 CFR 601.2)						
13. Patent information on any patent which claims the drug (21 U.S.C. 355(b) or (c))						
14. A patent certification with respect to any patent which claims the drug (21 U.S.C. 355 (b)(2) or (j)(2)(A))						
15. Establishment description (21 CFR Part 600, if applicable)						
16. Debarment certification/(FD&C Act 306 (k)(1))						
17. Field copy certification (21 CFR 314.50 (k)(3))						
18. User Fee Cover Sheet (Form FDA 3397)						
19. Financial Information (21 CFR Part 54)	• .					
20. OTHER (Specify)	,					
CERTIFICATION .						
l agree to update this application with new safety information about the product that ma warnings, precautions, or adverse reactions in the draft labeling. I agree to submit safet requested by FDA. If this application is approved, I agree to comply with all applicable including, but not limited to the following: 1. Good manufacturing practice regulations in 21 CFR Parts 210, 211 or applicable 2. Biological establishment standards in 21 CFR Part 600. 3. Labeling regulations in 21 CFR Parts 201, 606, 610, 660, and/or 809. 4. In the case of a prescription drug or biological product, prescription drug adverting 5. Regulations on making changes in application in FD&C Act Section 506A, 21 Cm 6. Regulations on Reports in 21 CFR 314.80, 314.81, 600.80, and 600.81. 7. Local, state and Federal environmental impact laws. If this application applies to a drug product that FDA has proposed for scheduling under product until the Drug Enforcement Administration makes a final scheduling decision. The data and information in this submission have been reviewed and, to the best of my Warning: A willfully false statement is a criminal offense, U.S. Code, title 18, section SIGNATURE OF RESPONSIBLE OFFICIAL OR AGENT TYPED NAME AND TITLE W.E. Lloyd, DVM, PhI ADDRESS (Street, City, State, and PP Code) 604 West Thomas Avenue, Shenandoah, Iowa 51601	by update reports as provided for by regulation or as aws and regulations that apply to approved applications, e regulations, Parts 606, and/or 820. Ising regulations in 21 CFR Part 202. FR 314.71, 314.72, 314.97, 314.99, and 601.12. In the Controlled Substances Act, I agree not to market the expression of the knowledge are certified to be true and accurate. DATE 27 May 2002 Telephone Number					
Public reporting burden for this collection of information is estimated to average instructions, searching existing data sources, gathering and maintaining the dainformation. Send comments regarding this burden estimate or any other aspect of this burden to:	is nonder and complete, and					

Department of Health and Human Services Food and Drug Administration CBER, HFM-99 1401 Rockville Pike Rockville, MD 20852-1448

Food and Drug Administration CDER, HFD-94 12420 Parklawn Dr., Room 3046 Rockville, MD 20852

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

this burden to:

Draft Labeling Page(s) Withheld

5/21/02 ACK CR



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration Rockville MD 20857

NDA 21-116

Lloyd Incorporated Attention: W. E. Lloyd, D.V.M., Ph.D. Chairman, CEO P.O. Box 130 604 West Thomas Avenue Shenandoah, Iowa 51601-0130

Dear Dr. Lloyd:

We acknowledge receipt on April 24, 2002, of your April 22, 2002, resubmission to your new drug application (NDA) for Thyro-Tabs (levothyroxine sodium tablets).

This resubmission contains additional chemistry and biopharmaceutics information submitted in response to our June 20, 2000, action letter.

We consider this a complete class 2 response to our action letter. Therefore, the user fee goal date is October 24, 2002.

If you have any questions, call me at (301) 827-6429.

Sincerely,

{See appended electronic signature page}

Enid Galliers
Chief, Project Management Staff
Division of Metabolic and Endocrine Drug Products
Office of Drug Evaluation II
Center for Drug Evaluation and Research

/s/

Enid Galliers 5/21/02 08:06:22 PM

LABELING RECOMMENDATIONS FOR NDA 21-116 - THYROTABS

For NDA 21-116 we are requesting a revision of your package insert for THYROTABS to conform with our template labeling for levothyroxine sodium which we have recently revised. We are sending you a copy of the revised template labeling, you submit your revised labeling as a labeling supplement that incoporates the revisions mad in the template labeling. The labeling supplement should include the package insert plus all package labels (include colored copies). In addition send under separate cover as a desk copy the labeling submission to Steve McCort, Project Manager. The desk copy to Mr. McCort should also include a copy of the labeling on a 3.5 diskette. The package insert should be formatted in Microsoft word 7.0 and PDF format. The package labeling should be formatted in PDF format only.

If you have any questions please contact Steve McCort, Project Manager, at 827-6415.

OK TO FAX:

David G. Orloff, M.D. Division Director, HFD-510

/s/

Stephen McCort 11/27/01 02:41:30 PM CSO





P.O. BOX 130 • 604 WEST THOMAS AVE. • SHENANDOAH, IOWA 51601-0130 U.S.A. • FAX (712) 246-5245

25 January 2000

ORIG AMENDMENT
SUL

John Jenkins, MD, Acting Division Director
Food and Drug Administration
Division of Metabolic and Endocrine Drug Products, HFD-510
Document Control Room 14B-19
5600 Fishers Lane

ATTENTION:

Rockville, Maryland 20857

Steve McCort, Project Manager

Division of Metabolic and Endocrine Drug Products, HFD-510

Subject:

NDA 21-116

Amendment, Submission No. 4

Thyro-Tabs[®] (levothyroxine sodium tablets, USP) (25, 50, 75, 100, 125, 150, 175, 200, and 300 mcg)

Dear Dr. Jenkins:

This submission provides the four month safety update in accordance with the requirements of 21 CFR 314.50(d)(5)(vi)(b).

No new clinical studies have been conducted by LLOYD, Inc., during the last four months. A review of the literature pertaining to safety of levothyroxine sodium has been conducted covering the period from 19 August to 31 December 1999 to fulfill the safety update requirement.

Correspondence concerning this NDA should be directed to Dr. Joseph W. Denhart, Vice-President Regulatory Affairs and Quality Assurance, LLOYD, Inc., 604 W. Thomas Avenue, P.O. Box 130, Shenandoah, Iowa 51601-0130. He or I can be contacted by telephone at (712) 246-4000, or by facsimile at (712) 246-5245.

REVIEWS COMPLETED	
OSO AGRICON DLETTER EMAL	□MEM6
CSO INITIALS	DATE

Respectfully,

LLOYD, Inc.

W.E. Lloyd DVM PhD

W. E. Lloyd, DVM, PhD CEO

Return Receipt Receipt Receipt REC'D

JAN 3 1 2000

HFD-510

TO



P.O. BOX 130 • 604 WEST THOMAS AVE. • SHENANDOAH, IOWA 51601-0130 U.S.A. • FAX (712) 246-5245

14 October 1999

Ronald W. Steigerwalt, PhD
Pharmacology Team Leader
Food and Drug Administration
Division of Metabolic and
Endocrine Drug Products, HFD-510
Document Control Room 14B-19
5600 Fishers Lane
Rockville, MD 20857

Re:

NDA 21-116, 08 October 1999 Request for information

Dear Dr. Steigerwalt:

This letter is in regard to the 08 October 1999 fax from Steve McCort, Project Leader, requesting information concerning "Recommendation for submission of preclinical data to support Levothyroxine products for replacement therapy."

Please refer to volume 6 of 31 of our NDA submission on page 18 Section 5.1.3. Nonclinical Toxicology Studies. We noted that, "No formal nonclinical toxicology studies were identified in the literature search." As noted on page 7 of this volume under Section 5.1.1. Introduction, a search of relevant English language articles from 1966 to 1999 of MEDLINE and EMBASE databases was done. The results of the search including printed abstracts were provided in Appendix 5.1.7.1. The search strategy including terms used in the search was presented in Appendix 5.1.7.2.

The search for nonclinical toxicology articles was repeated after receiving the fax. The search did not provide any nonclinical toxicology articles. Please let us know if you believe we have used an incorrect search strategy.

Since we did not find any pertinent articles in the literature search we have not made any reference to specific animal data in our labeling.

Thank you for your consultation in this regard. Please call Dr. Joseph W. Denhart at 712-246-4000 or fax us at 712-246-5245 as to how we should proceed in this matter.

Sincerely,

LLOYD, Inc.

W.E. Lloyd, DVM, PhD

CEO

NDA 21-116 Page 3

CC:

Archival NDA 21-116
HFD-510/Div. Files
HFD-510/S.McCort
HFD-510/Reviewers and Team Leaders
DISTRICT OFFICE

Drafted by: ddk/August 23, 1999 Initialed by:E.Galliers 8.23.99

final:DK 8.24.99 filename: 21116AC

ACKNOWLEDGEMENT (AC)

MC Cost_

AUG 2 4 1999

NDA 21-116

Lloyd, Inc. of Iowa Attention: W.E. Lloyd, DVM, Ph.D. Chairman, CEO 604 West Thomas Shenandoah, Iowa, USA 51601-0130

Dear Dr. Lloyd:

We have received your new drug application (NDA) submitted under section 505(b) of the Federal Food, Drug, and Cosmetic Act for the following:

Name of Drug Product:

Thryo-Tabs® (levothyroxine sodium tablets)

25, 50, 75, 100, 125, 150, 175, 200, and 300 mcg

Therapeutic Classification:

Standard (S)

Date of Application:

August 19, 1999

Date of Receipt:

August 20, 1999

Our Reference Number:

NDA 21-116

Unless we notify you within 60 days of our receipt date that the application is not sufficiently complete to permit a substantive review, this application will be filed under section 505(b) of the Act on October 19, 1999, in accordance with 21 CFR 314.101(a). If the application is filed, the primary user fee goal date will be June 20, 2000, and the secondary user fee goal date will be August 20, 2000.

Be advised that, as of April 1, 1999, all applications for new active ingredients, new dosage forms, new indications, new routes of administration, and new dosing regimens are required to contain an assessment of the safety and effectiveness of the product in pediatric patients unless this requirement is waived or deferred (63 FR 66632). If you have not already fulfilled the requirements of 21 CFR 314.55 (or 601.27), please submit your plans for pediatric drug development within 120 days from the date of this letter unless you believe a waiver is appropriate. Within 120 days of receipt of your pediatric drug development plan, we will notify you of the pediatric studies that are required under section 21 CFR 314.55.

If you believe that this drug qualifies for a waiver of the study of the pediatric study requirement, you should submit a request for a waiver with supporting information and documentation in accordance with the provisions of 21 CFR 314.55 within 60 days from the date of this letter. We



NDA 21-116 Page 2

will notify you within 120 days of receipt of your response whether a waiver is granted. If a waiver is not granted, we will ask you to submit your pediatric drug development plans within 120 days from the date of denial of the waiver.

Pediatric studies conducted under the terms of section 505A of the Federal Food, Drug, and Cosmetic Act may result in additional marketing exclusivity for certain products (pediatric exclusivity). You should refer to the *Guidance for Industry on Qualifying for Pediatric Exclusivity* (available on our web site at www.fda.gov.cder/pediatric) for details. If you wish to qualify for pediatric exclusivity you should submit a "Proposed Pediatric Study Request" in addition to your plans for pediatric drug development described above. If you do not submit a Proposed Pediatric Study Request within 120 days from the date of this letter, we will presume that you are not interested in obtaining pediatric exclusivity and will notify you of the pediatric studies that are required under section 21 CFR 314.55. Please note that satisfaction of the requirements in 21 CFR 314.55 alone may not qualify you for pediatric exclusivity.

Please cite the NDA number listed above at the top of the first page of any communications concerning this application. All communications concerning this NDA should be addressed as follows:

U.S. Postal Service/Courier/Overnight Mail:

Food and Drug Administration
Center for Drug Evaluation and Research
Division of Metabolic and Endocrine Drug Products, HFD-510
Attention: Division Document Room, 14B-19
5600 Fishers Lane
Rockville, Maryland 20857

If you have any questions, contact Steve McCort, Regulatory Project Manager, at (301) 827-6415.

Sincerely,

51

Enid Galliers
Chief, Project Management Staff
Division of Metabolic and Endocrine Drug Products
Office of Drug Evaluation II
Center for Drug Evaluation and Research